TERMINOLOGY

Many of the terms listed below are defined differently by various agencies or organizations. The definitions of the American Association of State Highway and Transportation Officials (AASHTO) are the ones most commonly used in this document.

Absorbed water – Water drawn into a solid by absorption, and having physical properties similar to ordinary water.

Absorption – The increase in the mass of aggregate due to water being absorbed into the pores of the material, but not including water adhering to the outside surface of the particles, expressed as a percentage of the dry mass.

ACC batch plant – A manufacturing facility for producing asphalt cement concrete (ACC) that proportions aggregate by weight and asphalt by weight or volume.

ACC continuous mix plant – A manufacturing facility for producing asphalt cement concrete (ACC) that proportions aggregate and asphalt by a continuous volumetric proportioning system without specific batch intervals.

Acceptance – See verification.

Acceptance program – All factors that comprise the State Highway Agency's (SHA) determination of the quality of the product as specified in the contract requirements. These factors include verification sampling, testing, and inspection and may include results of quality control sampling and testing.

Admixture – Material other than water, cement, and aggregates in portland cement concrete (PCC).

Adsorbed water – Water attached to the surface of a solid by electrochemical forces, and having physical properties substantially different from ordinary water.

Aggregate – Hard granular material of mineral composition, including sand, gravel, slag or crushed stone, used in roadway base and in portland cement concrete (PCC) and asphalt cement concrete (ACC).

- **Coarse aggregate** – Aggregate retained on or above the 4.75 mm (No. 4) sieve.
- **Coarse-graded aggregate** – Aggregate having a predominance of coarse sizes.
- **Dense-graded aggregate** – Aggregate having a particle size distribution such that voids occupy a relatively small percentage of the total volume.
- **Fine aggregate** – Aggregate passing the 4.75 mm (No. 4) sieve.
- **Fine-graded aggregate** – Aggregate having a predominance of fine sizes.
- **Mineral filler** – A fine mineral product at least 70 percent of which passes a 75 µm (No. 200) sieve.

- **Open-graded gap-graded aggregate** – Aggregate having a particle size distribution such that voids occupy a relatively large percentage of the total volume.
- **Well-Graded Aggregate** – Aggregate having an even distribution of particle sizes.

Aggregate storage bins – Bins that store aggregate for feeding material to the dryer in a hot mix asphalt (HMA) plant in substantially the same proportion as required in the finished mix.

Agitation – Provision of gentle motion in portland cement concrete (PCC) sufficient to prevent segregation and loss of plasticity.

Air voids – Total volume of the small air pockets between coated aggregate particles in asphalt cement concrete (ACC); expressed as a percentage of the bulk volume of the compacted paving mixture.

Ambient temperature – Temperature of the surrounding air.

Analysis Period – The time period used for comparing design alternatives. An analysis period may contain several maintenance and rehabilitation activities during the life cycle of the pavement being evaluated. It is sometimes referred to as the economic life, that period over which an investment is considered for satisfying a particular need. The length of time for the analysis period would be established by the agency.

Angle of internal friction – The angle whose tangent is the ratio between the resistance offered to sliding along any plane in the soil and the component of the applied force acting normal to that plane.

Angular aggregate – Aggregate possessing well-defined edges at the intersection of roughly planar faces.

Annualized method – Economic method that requires conversion of all present and future expenditures to a uniform annual cost.

Anti-stripping agent – Chemicals added to bitumen to improve the adhesion of the bitumen to hydrophilic aggregates

Apparent specific gravity – The ratio of the mass, in air, of a volume of the impermeable portion of aggregate to the mass of an equal volume of water.

Asphalt – A dark brown to black cementitious material in which the predominate constituents are bitumens occurring in nature or obtained through petroleum processing. Asphalt is a constituent of most crude petroleums.

Asphalt cement – An asphalt specially prepared in quality and consistency for use in the manufacture of asphalt cement concrete (ACC).

Asphalt cement concrete (ACC) – A controlled mix of aggregate and asphalt cement.

Auger - A drill for test holes in unconsolidated material modeled after the conventional carpenter's screw auger.

Automatic cycling control – A control system in which the opening and closing of the weigh hopper discharge gate, the bituminous discharge valve, and the pugmill discharge gate are actuated by means of automatic mechanical or electronic devices without manual control. The system includes preset timing of dry and wet mixing cycles.

Automatic dryer control – A control system that automatically maintains the temperature of aggregates discharged from the dryer.

Automatic proportioning control – A control system in which proportions of the aggregate and asphalt fractions are controlled by means of gates or valves that are opened and closed by means of automatic mechanical or electronic devices without manual control.

Axle-load - The total load transmitted by all wheels whose centers may be included between two parallel transverse vertical planes 3 feet 3 inches apart, extending across the full width of the vehicle.

Bag (of cement) – 94 lb of portland cement. (Approximately 1 ft^3 of bulk cement.)

Base – A layer of selected material constructed on top of subgrade or subbase and below the paving on a roadway.

Benefit/cost analysis - Technique intended to relate the economic benefits of a solution to the costs incurred in providing the solution.

Bias – The offset or skewing of data or information away from its true or accurate position as the result of systematic error.

Binder – Asphalt cement or modified asphalt cement that binds the aggregate particles into a dense mass.

Borrow - Construction material that must be hauled in from outside the roadway limits for the construction of the roadbed embankments, subgrade, shoulders, etc.

Boulders – Rock fragment, often rounded, with an average dimension larger than 300 mm (12 in.).

Broken rock - Angular fragments of rock larger than 3 inches in size.

Bulk specific gravity – The ratio of the mass, in air, of a volume of aggregate or compacted HMA mix (including the permeable and impermeable voids in the particles, but not including the voids between particles) to the mass of an equal volume of water.

Bulk specific gravity (SSD) – The ratio of the mass, in air, of a volume of aggregate or compacted HMA mix, including the mass of water within the voids (but not including the voids between particles), to the mass of an equal volume of water. (See saturated surface dry.)

Capillary water – Water held in a soil by the capillaries in the soil. It is free water, but it can he removed from the soil only after the water table is lowered or when evaporation takes place at a faster rate than the rate of capillary flow.

Cash-flow diagram – Schematic diagram of dollar costs and benefits with respect to time.

Cementitious Materials – cement and pozzolans used in concrete such as; Portland Cement, fly ash, silica fume, & blast-furnace slag.

Clay – Fine-grained soil that exhibits plasticity over a range of water contents, and that exhibits considerable strength when dry. Also, that portion of the soil finer than 2 μm.

Coarse aggregate – Aggregate retained on or above the 4.75 mm (No. 4) sieve.

Coarse-graded aggregate – Aggregate having a predominance of coarse sizes.

Cobble – Rock fragment, often rounded, with an average dimension between 75 and 300 mm (3 and 12 in.).

Cohesion – The mutual attraction of particles due to molecular forces and the presence of moisture films.

Cohesionless soil – Soil with little or no strength when dry and unconfined or when submerged, such as sand.

Cohesive soil – Soil with considerable strength when dry and that has significant cohesion when unconfined or submerged.

Compaction – Densification of a soil or hot mix asphalt (HMA) by mechanical means.

Compaction curve (Proctor curve or moisture-density curve) – The curve showing the relationship between the dry unit weight or density and the water content of a soil for a given compactive effort.

Compaction test (moisture-density test) – Laboratory compaction procedure in which a soil of known water content is placed in a specified manner into a mold of given dimensions, subjected to a compactive effort of controlled magnitude, and the resulting density determined.

Compressibility – Property of a soil or rock relating to susceptibility to decrease in volume when subject to load.

Consistency of concrete - The relative mobility of fresh-mixed concrete or mortar, commonly measured by its slump.

Consolidation - The decrease in thickness of a soil stratum due to an increase in load.

Constant dollars - Dollars that have not been adjusted for the effects of expected future inflation or deflation; sometimes referred to as dollars as of a specific date (for example, "1980 dollars").

Construction joint – A joint made necessary by a prolonged interruption in the placing of concrete or asphalt.

Constructor – The builder of a project. The individual or entity responsible for performing and completing the construction of a project required by the contract documents. Often called a contractor, since this individual or entity contracts with the owner.

Contraction joint – A joint at the ends of a rigid slab to control the location of transverse cracks.

Corrective maintenance – Type of maintenance used to take care of day-to-day emergencies and repair deficiencies as they develop. May include both temporary and permanent repairs; sometimes referred to as remedial maintenance.

Crack – A fissure or open seam not necessarily extending through the body of a material.

Creep – Slow movement of soil usually imperceptible except to observations of long duration.

Crusher-run – The total unscreened product of a stone crusher.

Current dollars – An expression of costs stated at price levels prevailing at the time costs are incurred. Current dollars are inflated and represent price levels that may exist at some future date when the costs are incurred.

Dense-graded aggregate – Aggregate having a particle size distribution such that voids occupy a relatively small percentage of the total volume.

Deflocculating agent – A chemical that destroys or prevents the formation of flocs.

Deformed bar – A reinforcing bar conforming to "Minimum Requirements for the Deformations of Deformed Steel Bars for Concrete Reinforcements," AASHTO Designation M-137.

Degree of saturation – The ratio of the volume of water to the volume of voids. It is usually expressed as a percentage.

Delivery tolerances – Permissible variations from the desired proportions of aggregate and asphalt cement delivered to the pugmill.

Denial-of-use costs – Extra costs occurring during the life cycle because occupancy or income (production) is delayed as a result of a process decision.

Density – The ratio of mass to volume of a substance. Usually expressed in kg/m^3.

Depreciation – The allocation of the cost of a fixed asset over the estimated years of productive use. It is a process of allocation, not valuation. (Straight line; Declining balance; Sum of years—digits).

Design life – The length of time (in years) for which a pavement facility is being designed, including programmed rehabilitation. At the end of this period, the physical

life of the facility is considered to be ended, i.e., the pavement structure has deteriorated to a point where total reconstruction would be necessary.

Design professional – The designer of a project. This individual or entity may provide services relating to the planning, design, and construction of a project, possibly including materials testing and construction inspection. Sometimes called a "contractor", since this individual or entity contracts with the owner.

Discount rate – A value in percent used as the means for comparing the alternative used for funds by reducing the future expected costs or benefits to present day terms. Discount rates are used to reduce various costs or benefits to their present worth or to uniform annual costs so that the economics of the different alternatives can be compared.

Disintegration – Deterioration into small fragments from any cause.

Distortion – Any deviation of a surface from its original condition.

Dowel – A load-transfer device usually consisting of a plain, round, steel bar.

Dryer – An apparatus that dries aggregate and heats it to specified temperatures.

Dry mix time – The time interval between introduction of aggregate into the pugmill and the addition of asphalt cement.

Durability – The property of concrete that describes its ability to resist disintegration by weathering and traffic. Included under weathering are changes in the pavement and aggregate due to the action of water, including freezing and thawing.

Effective diameter (effective size) – D_{10}, particle diameter corresponding to 10 percent finer or passing.

Elasticity – The property of a material which enables it to rebound after compaction or after removal of a load.

Embankment – Controlled, compacted material between the subgrade and subbase or base in a roadway.

Emulsified asphalt – An emulsion of asphalt cement and water which contains a small amount of an emulsifying agent. Water forms the continuous phase of the emulsion, and minute globules of asphalt form the discontinuous phase.

End-result specifications – Specifications that require the Constructor to take the entire responsibility for supplying a product or an item of construction. The Owner's (the highway agency's) responsibility is to either accept or reject the final product or to apply a price adjustment that is commensurate with the degree of compliance with the specifications. Sometimes called performance specifications, although considered differently in highway work. (See performance specifications.)

Engineering economics – Technique that allows the assessment of proposed engineering alternatives on the basis of considering their economic consequences over time.

Equivalent dollars – Dollars, both present and future, expressed in a common baseline reflecting the time value of money and inflation.

Equivalence factor – A numerical factor that expresses the relationship of a given axle load to another axle load in terms of their effect on the serviceability of a pavement structure.

Erosion – The loosening and transporting of rock debris and soil by moving agents operation on the earth's surface. The four main moving agents include the wind, waves and currents in the ocean or other bodies of water, glaciers, and running water.

Escalation (differential) rate – That rate of inflation above the general devaluation of the purchasing power of the dollar.

Expansion joint – A joint located to provide for expansion of a rigid slab without damage to itself, adjacent slabs or structures.

Failure – Unsatisfactory performance of a pavement or portion such that it can no longer serve its intended purpose.

Faulting – Differential vertical displacement of material adjacent to a joint or crack.

Field operating procedure (FOP) – Procedure used in field testing on a construction site or in a field laboratory. (Based on AASHTO or NAQTC test methods.)

Fineness modulus – A factor equal to the sum of the cumulative percentages of aggregate retained on certain sieves divided by 100; the sieves are 150, 75, 37.5, 19.0, 9.5, 4.75, 2.36, 1.18, 0.60, 0.30, and 0.15 mm. Used in the design of concrete mixes. The lower the fineness modulus, the more water/cement paste that is needed to coat the aggregate.

Fines – Portion of a soil or aggregate finer than a 75 µm (No. 200) sieve. Also silts and clays.

Fine aggregate – Aggregate passing the 4.75 mm (No. 4) sieve.

Flexible pavement – A pavement structure which maintains intimate contact with and distributes loads to the subgrade and depends upon aggregate interlock, particle friction, and cohesion for stability.

Floc – A loose, open-structured mass formed in a suspension by the aggregation of minute particles.

Fog coat – A very light application of asphalt without aggregate cover.

Foundation soil – The earth mass that carries the load of a structure or embankment.

Free water – Water on aggregate available for reaction with hydraulic cement. Mathematically, the difference between total moisture content and absorbed moisture content.

Friable – Easy to break or crumble.

Frost heave – The raising of a surface due to the accumulation of ice in the underlying soil.

Geologic map – A map that shows the distribution of the different rock masses that underlie the ground surface plotted accurately to scale in relation to the topographic features and other control points on the map.

Gilsonite – A solid variety of asphalt that occurs in nature in the Uintah Basin, Utah.

Glacial till – Material deposited by glaciation, usually composed of a wide range of particle sizes, which has not been subjected to the sorting action of water.

Gradation (grain-size distribution) – The proportions by mass of a soil or fragmented rock distributed by particle size.

Gradation analysis (grain size analysis or sieve analysis) – The process of determining grain-size distribution by separation of sieves with different size openings.

Gravel – Rounded particles of rock which will pass a 3 inch sieve and be retained on a No. 10 sieve.

Gravitational water – Water free to move downward under the force of gravity. It is the water that will drain from a soil.

Ground water – Water that saturates the pores and cracks in the soil and rock beneath the land surface

Heave – Upward movement of soil caused by expansion or displacement resulting from phenomena such as moisture absorption, removal of overburden, driving of piles, frost action etc.

Homogeneous mass – A mass that exhibits essentially the same physical properties at every point throughout the mass.

Honeycomb – A surface of interior defect in a concrete mass characterized by the lack of mortar between the coarse aggregate particles.

Hot aggregate storage bins – Bins that store heated and separated aggregate prior to final proportioning into the mixer.

Hot mix asphalt (HMA) – High quality, thoroughly controlled hot mixture of asphalt cement and well-graded, high quality aggregate.

Hummocky – Lumpy, or in small uneven knolls.

Hydraulic cement – Cement that sets and hardens by chemical reaction with water.

Hydrophilic aggregate – An aggregate that exhibits a greater affinity for water than for bitumen.

Hydrophobic aggregate – An aggregate that exhibits a greater affinity for bitumen than for water.

Hydrostatic pressure – The pressure in a liquid under static conditions; the product of the unit weight of the liquid and the difference in elevation between the given point and the free water elevation.

Hygroscopic moisture – Water retained by soil after gravitational and capillary moisture is removed. It is held by each soil grain in the form of a very thin film and has both a physical and chemical affinity for the soil grain. It is also spoken of as the air-dry moisture content. This film is in equilibrium with the moisture content of the air and increases or decreases as the humidity of the air increases or decreases. The hygroscopic moisture content of a soil also varies with the grain size. As the grain size increases, the hygroscopic moisture content increases.

Independent assurance – Unbiased and independent evaluation of all the sampling and testing procedures, equipment, and technicians involved with Quality Control (QC) and Verification/Acceptance.

Inflation – A continuing rise in the general price levels, caused usually by an increase in the volume of money and credit relative to available goods.

Initial costs – Costs associated with initial development of a facility, including project costs (fees, real estate, site, etc.) as well as construction cost.

In situ – Rock or soil in its natural formation or deposit.

Interest – A ratio of the amount paid for using resources for a given period of time to the total investment. A term generally associated with borrowing money and is often referred to as market interest rates. The market interest rate includes both an allowance for expected inflation as well as a return that represents the real cost of capital.

Internal Friction – The resistance to sliding within a soil mass due to particle interlock and particle friction.

Leaching – **T**he removal of soluble salts or other soluble materials by percolating water.

Leveling course – A course of variable thickness used to eliminate irregularities in contour of an existing surface prior to superimposed treatment or construction.

Life cycle costing – An economic assessment of an item, area, system, or facility and competing design alternatives considering all costs of ownership over the economic life, expressed in terms of equivalent dollars.

Lineal shrinkage – The decrease in one dimension of a soil mass when the water content is reduced from a given percentage to the shrinkage limit.

Liquid limit – Water content corresponding to the boundary between the liquid and plastic states.

Loam – A mixture of sand, silt and/or clay with organic matter.

Load-transfer device – A mechanical means designed to carry loads across a joint.

Longitudinal joint – A full-depth of weakened-plane type joint placed between traffic lanes to control longitudinal cracking.

Lot – A quantity of material to be controlled. It may represent a specified mass, a specified number of truckloads, or a specified time period during production.

Maintenance – Anything done to pavement after original construction until complete reconstruction, excluding shoulders and bridges. It includes pavement rehabilitation and restoration.

Materials option – A legal and binding contract for the procurement of road-building material within a specified length of time.

Manual proportioning control – A control system in which proportions of the aggregate and asphalt fractions are controlled by means of gates or valves that are opened and closed by manual means. The system may or may not include power assisted devices in the actuation of gate and valve opening and closing.

Materials and methods specifications – Also called prescriptive specifications. Specifications that direct the Constructor to use specified materials in definite proportions and specific types of equipment and methods to place the material.

Maximum density – The oven-dry weight per cubic foot of a soil compacted at the optimum moisture content under a given compactive effort.

Maximum size – One sieve larger than nominal maximum size.

Mesh – The square opening of a sieve.

Mineral filler – A fine mineral product at least 70 percent of which passes a 75 µm (No. 200) sieve.

Minimum attractive rate of return – Reflects the cost of using resources and the risk that the project may fail to produce the expected results. The risk portion of the minimum attractive rate of return varies with different cost centers and even with projects within cost centers.

Moisture content – The ratio, expressed as a percentage, of the mass of water in a material to the dry mass of the material.

Nominal maximum size – One sieve larger than the first sieve to retain more than 10 percent of the material using an agency specified set of sieves based on cumulative percent retained. Where large gaps in specification sieves exist, intermediate sieve(s) may be inserted to determine nominal maximum size.

Note: - The first sieve to normally retain more than 10% of the material usually is the second sieve in the stack but may be the third sieve.

Non-recurring cost – Cost that occurs, or is expected to occur, only once.

Nuclear gauge – Instruments used to measure in-place density, moisture content, or asphalt content through the measurement of nuclear emissions.

Open-graded gap-graded aggregate – Aggregate having a particle size distribution such that voids occupy a relatively large percentage of the total volume.

Optimum moisture content (optimum water content) – The water content at which a soil can be compacted to a maximum dry density by a given compactive effort.

Opportunity rate – That rate of return that the organization could make by investing its resources in the most beneficial (profitable) projects to the limit of the resources available.

Organic soil – Soil with a high organic content.

Owner – The organization that conceives of and eventually operates and maintains a project. A State Highway Agency (SHA) is an Owner.

Paste – Mix of water and hydraulic cement that binds aggregate in portland cement concrete (PCC).

Pavement condition – The present status or performance of a pavement.

Pavement management system – A set of tools or methods that assist decision makers in finding optimum strategies for providing and maintaining pavements in a serviceable condition over a given period of time.

Pavement structure – The combination of subbase, base, and surface courses placed on a subgrade to support the traffic load and distribute it to the roadbed.

Penetration – The consistency of a bituminous material, expressed as the distance in tenths of a millimeter (0.1 mm) that a standard needle vertically penetrates a sample of the material under specified conditions of loading, time, and temperature.

Percent compaction – The ratio of density of a soil, aggregate, or HMA mix in the field to maximum density determined by a standard compaction test, expressed as a percentage.

Performance of Pavement – The trend of serviceability with load applications.

Performance specifications – Specifications that describe how the finished product should perform. For highways, performance is typically described in terms of changes over time in physical condition of the surface and its response to load, or in terms of the cumulative traffic required to bring the pavement to a condition defined as "failure." Specifications containing warranty/guarantee clauses are a form of performance specifications.

Permeability – The property of a material allowing it to transmit water.

Piezometer – An instrument for measuring water pressure.

Pitting – The displacement of aggregate particles from a surface due to traffic or weathering.

Plant screens – Screens located between the dryer and hot aggregate storage bins that separate the heated aggregates by size.

Plastic limit – Water content corresponding to the boundary between the plastic and the semisolid states.

Plasticity – Property of a material to continue to deform indefinitely while sustaining a constant stress.

Plasticity index – Numerical difference between the liquid limit and the plastic limit and, thus, the range of water content over which the soil is plastic.

Pore-water pressure – Stress transmitted through the pore water of a soil (water filling the voids of the soil).

Porosity – The ratio of the volume of void space (pores) of a material to the total volume of its mass, usually expressed as a percent.

Portland cement – Hydraulic cement produced by pulverizing portland cement clinker.

Portland cement concrete (PCC) – A controlled mix of aggregate, portland cement, and water, and possibly other admixtures.

PCC batch plant – A manufacturing facility for producing portland cement concrete.

Prescriptive specifications – See Materials and Methods specification.

Preventive maintenance – The type of maintenance intended to keep the pavement above some minimum acceptable level at all times. It is used as a means of preventing further pavement deterioration that would require corrective maintenance. It may include either structural or nonstructural improvements to a pavement surface.

Prime coat – An application of a liquid asphalt to a surface.

Proficiency samples – Homogeneous samples that are distributed and tested by two or more laboratories. The test results are compared to assure that the laboratories are obtaining the same results.

Pugmill – A shaft mixer designed to mix aggregate and cement.

Pumping – The ejection of foundation soil, either wet or dry, through joints or cracks, or along edges of rigid slabs, due to vertical movements under traffic.

Quality assurance – Planned and systematic actions necessary to provide confidence that a product or service will satisfy given requirements for quality. The overall system for providing quality in a constructed project, including Quality Control (QC), Verification/Acceptance, and Independent Assurance (IA).

Quality assurance specifications – Also called QC/QA specifications. A combination of end-result (performance) specifications and materials and methods (prescriptive) specifications. The Constructor is responsible for quality control, and the Owner (highway agency) is responsible for acceptance of the product.

Quality control (QC) – Operational, process control techniques or activities that are performed or conducted to fulfill contract requirements for material or equipment quality.

Rate of return – The interest rate that, over a period of time, equates the benefits derived from an opportunity to the investment cost of the project.

Random sampling – Procedure for obtaining non-biased, representative samples.

Raveling – Progressive disintegration of a pavement surface by dislodgment of aggregate particles.

Recurring costs – Costs that recur on a periodic basis throughout the life of the project.

Regional factor – A numerical factor that is used to adjust the structural number for climatic and environmental conditions.

Rehabilitation – The act of restoring the pavement to a former condition so it can fulfill its function.

Reinforcement – Steel embedded in a rigid slab to resist tensile stresses and detrimental opening of cracks.

Replacement costs – Those one-time costs to be incurred in the future to maintain the original function of the facility or item.

Rigid pavement – A pavement structure which distributes loads to the subgrade, consisting of a portland cement concrete slab of relatively high bending resistance, underlain by a subbase.

Riprap – Broken rock used for the protection of embankments, cut slopes, structures, etc, against agents of erosion, primarily water.

Risk – Exists when each alternative will lead to one of a set of possible outcomes and there is a known probability of each outcome.

Roadbed – The graded portion of a highway between top and side slopes, prepared as a foundation for the pavement structure and shoulders.

Roadbed material – The material below the subgrade in cuts and embankments, and in embankment foundations extending to such depth as affects the support of the pavement structure.

Road mix – A mixture of aggregate and asphalt mixed in place.

Rutting – The formation of longitudinal depressions by the lateral displacement of soils or surfaces under traffic.

Salvage value – The value (positive if it has residual economic value and negative if requiring demolition) of competing alternatives at the end of the life cycle or the analysis period. Sometimes referred to as residual value.

Sand – Particles of rock passing the 4.75 mm (No. 4) sieve and retained on the 75 µm (No. 200) sieve.

Saturated surface dry (SSD) – Condition of an aggregate particle, asphalt cement concrete (ACC) or portland cement concrete (PCC) core, or other porous solid when the permeable voids are filled with water, but no water is present on exposed surfaces. (See bulk specific gravity.)

Saturation curve (zero air voids curve) – The curve showing the zero air voids unit weight as a function of water content.

Screeding – The process of striking off excess material to bring the top surface to proper contour and elevation.

Seal coat – A thin asphaltic surface treatment used to improve the texture of and waterproof an asphalt surface.

Segregation – The separation of aggregate by size resulting in a non-uniform material.

Selected material – Suitable native material obtained from roadway cuts or borrow areas, or other similar material used for subbase, roadbed material, shoulder surfacing, slope cover, etc.

Sensitivity – The effect of remolding on the consistency of a cohesive soil.

Sensitivity analysis – A technique to assess the relative effect a change in input variable(s) has (have) on the resulting output.

Serviceability – The ability at time of observation of a pavement to serve high-speed, high-volume automobile and truck traffic.

Serviceability index – A number derived by formula for estimating the serviceability rating from measurements of certain physical features of the pavement.

Serviceability rating – The mean value of the independent subjective ratings by members of a special panel for the AASHTO Road Test as to the serviceability of a section of highway.

Settlement – The reduction in elevation of short sections of pavement or structures due to compressibility of underlying soils.

SHRP – The Strategic Highway Research Program (SHRP) established in 1987 as a five-year research program to improve the performance and durability of roads and to make those roads safe for both motorists and highway workers. SHRP research funds were partly used for the development of performance-based specifications to directly relate laboratory analysis with field performance.

Shrinkage ration – The ratio between a given volume change and the corresponding change in water content above the shrinkage limit.

Sieve – Laboratory apparatus consisting of wire mesh with square openings, usually in circular or rectangular frames.

Silt – Material passing the 75 µm (No. 200) sieve that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry and unconfined. Also, that portion of the soil finer than 75 µm and coarser than 2 µm.

Slab length – The distance between transverse contraction joints in rigid pavement.

Slaking – The process of breaking up or sloughing.

Slump – Measurement related to the workability of concrete.

Soil – Sediments or unconsolidated accumulations of solid particles produced by the physical and chemical disintegration or rocks, and which may or may not contain organic matter.

Soil profile – A vertical cross-section of soil layers.

Soil structure – The arrangement and state of aggregation of soil particles in a soil mass.

Soil support value – An index number that expresses the relative ability of a soil or aggregate mixture to support traffic loads through the pavement structure.

Soil texture – The relative proportion of the various particle-size groups of small; individual grains contained; in a soil the coarseness or fineness of the soil.

Soundness – Resistance to both physical and chemical weathering.

Spalling – Peeling away of a surface, particularly portland cement concrete.

Specific gravity – The ratio of the mass, in air, of a volume of a material to the mass of an equal volume of water.

Stability – The ability of an asphalt cement concrete (ACC) to resist deformation from imposed loads. Stability is dependent upon internal friction, cohesion, temperature, and rate of loading.

Stratified random sampling – Procedure for obtaining non-biased, representative samples in which the established lot size is divided into equally-sized sublots.

Stripping – Separation of bituminous films from aggregate particles due to the presence of moisture.

Structural Number – An index number derived from an analysis of traffic and roadbed soil conditions, which may be converted to pavement thickness through the use of suitable factors related to the type of material being used in the pavement structure.

Subbase – A layer of selected material constructed between the subgrade and the base coarse in a flexible HMA roadway, or between the subgrade and portland cement concrete (PCC) pavement in a rigid PCC roadway.

Subgrade – Natural soil prepared and compacted to support a structure or roadway pavement.

Sublot – A segment of a lot chosen to represent the total lot.

Superpave™ – Superpave™ (Superior Performing Asphalt Pavement) is a trademark of the Strategic Highway Research Program (SHRP). Superpave™ is a product of the SHRP asphalt research. The Superpave™ system incorporates performance-based asphalt materials characterization with design environmental conditions to improve performance by controlling rutting, low temperature cracking and fatigue cracking. The three major components of Superpave™ are the asphalt binder specification, the mix design and analysis system, and a computer software system.

Surcharge – Additional fill material placed on a fill already built to grade. The additional fill material accelerates the rate of consolidation of compressible foundation soils.

Surface course – One or more layers of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. This top layer is sometimes referred to as the wearing course.

Surface texture – Surface texture refers to the degree of polish of a surface. It also refers to the markings of a surface, such as pits and striations, regardless whether this surface shows a high degree of polish otherwise.

Tack coat – A very light application of liquid asphalt, or an asphalt emulsion diluted with water.

Tar – A bituminous condensate produced by the destructive distillation of petroleum, coal, or wood.

Theoretical maximum specific gravity – The ratio of the mass of a given volume of asphalt cement concrete (ACC) with no air voids to the mass of an equal volume of water, both at a stated temperature.

Time value of money – Recognition that all organizations have limited resources (finances, people, facilities, equipment) and that the commitment of these to a project precludes their use for any other investment. Whether internal resources are used, or borrowed, the interest that these resources could produce is a cost to the project.

Topsoil – Surface soil, usually containing organic matter.

Trade-offs – Giving up one thing to obtain something else.

Transverse joint – A joint running across the pavement.
Unconfined compressive strength - The load per unit area at which an unconfined cylindrical specimen will fail in simple compression.

Undisturbed sample – A soil sample that has been obtained by methods which minimize disturbance of the sample.

Uniformity coefficient – C_u, a value employed to quantify how uniform or well-graded an aggregate is: $C_u = D_{60}/D_{10}$. 60 percent of the aggregate, by mass, has a diameter smaller than D_{60} and 10 percent of the aggregate, by mass, has a diameter smaller than D_{10}.

Unit weight – The ratio of weight to volume of a substance. The term “density” is more commonly used.

µm – Micro millimeter (micron) Used as measurement for sieve size.

Useful life – The period of time over which a building element may be expected to give service. It may represent physical, technological, or economic life.

User costs – Those costs that are accumulated by the user of a facility. In a life cycle cost analysis these could be in the form of delay costs or change in vehicle operating costs.

Value engineering (VE) – An analysis of materials, processes, and products where functions are related to cost and from which a selection may be made for the purpose of achieving the required function at the lowest overall cost consistent with the requirements for performance, reliability, and maintainability; sometimes called value analysis.

Vendor – Supplier of project-produced material that is other than the constructor.

Verification – Process of sampling and testing performed to validate Quality Control (QC) sampling and testing and, thus, the quality of the product. Sometimes called Acceptance.

Viscosity – A measure of the resistance to flow; one method of measuring the consistency of asphalt.

- **Absolute viscosity** – A method of measuring viscosity using the "poise" as the basic measurement unit. This method is used at a temperature of 60°C, typical of hot pavement.

- **Kinematic viscosity** – A method of measuring viscosity using the stoke as the basic measurement unit. This method is used at a temperature of 135°C, typical of hot asphalt at a plant.

Void – The space in a soil mass or other material not occupied by solid mineral matter.

Void ratio – The ratio of the volume of voids to the volume of solid particles.

Void in the mineral aggregate (VMA) – The volume of inter-granular void space between aggregate particles of compacted asphalt cement concrete (ACC) that includes air and asphalt; expressed as a percentage of the bulk volume of the compacted paving mixture.

Voids filled with asphalt – The portion of the void in the mineral aggregate (VMA) that contains asphalt; expressed as a percentage of the bulk volume of mix or the VMA.

Volumetric change – The decrease in volume of the soil mass when the water content is reduced from a given percentage to the shrinkage limit.

Water holding capacity – The smallest value to which the water content of a soil can be reduced by gravity drainage.

Water table – The upper surface of a zone beneath the land surface where all the pores in the soil or rock are completely filled with water.

Wearing Course – The top portion of a surface course that takes direct wear from traffic.

Well-Graded Aggregate – Aggregate having an even distribution of particle sizes.

Wet mixing period – The time interval between the beginning of application of asphalt material and the opening of the mixer gate.

Yield of concrete – The volume of concrete produced per sack of cement.

Zero air voids curve (saturation curve) – Curve showing the zero air voids density as a function of water content.